

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An electron beam apparatus comprising:

a first substrate that includes a plurality of electron-emitting devices,

wherein said plurality of electron-emitting devices are provided in a vacuum container;

a second substrate that is located opposite said first substrate and

that has a region irradiated by electrons emitted by said electron-emitting devices in said vacuum container;

at least one spacer that is mounted as an atmospheric-pressure resistant structure, that is sandwiched directly between said first and second substrates, or indirectly via an intermediate member between said first and second substrates, and that is extended longitudinally in a direction perpendicular to the a direction in which said first and second substrates are positioned opposite each other; and

a support member, for supporting said spacer outside an electron-emitting region that is defined between a region of said first substrate wherein said electron-emitting devices are located, and a region of said second substrate that is irradiated by said electrons,

wherein said spacer has, in a vicinity of an end in a longitudinal direction, a portion shorter in a width direction of a gap between said first and second substrates rather than in another direction portion.

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) An electron beam apparatus according to claim 1, wherein said support member is fixed to said first or said second substrate, and wherein the ends of said spacer are inserted into grooves formed in said support member.

cl. 5. (Previously Presented) An electron beam apparatus according to claim 1, wherein said support member is formed of a material that is softer than said spacer.

6. (Currently Amended) An electron beam apparatus according to claim 1, wherein said support member is shorter than said spacer in the a direction in which said first substrate faces said second substrate.

7. (Currently Amended) An electron beam apparatus comprising:
a first substrate that includes a plurality of electron-emitting devices,
wherein said plurality of electron-emitting devices are provided in a vacuum container;
a second substrate that is located opposite said first substrate and
that has a region irradiated by electrons emitted by said electron-emitting devices;
at least one spacer that is mounted as an atmospheric-pressure
resistant structure that is sandwiched directly between said first and second substrates, or
indirectly via an intermediate member between said first and second substrates, and that is
extended longitudinally in a direction perpendicular to the a direction in which said first
and second substrates are positioned opposite each other; and
a support member that, outside an electron-emitting region that is

defined between a region of said first substrate wherein said electron-emitting devices are located and the region on said second substrate that is irradiated by said electrons, is mounted on said substrate whereon said spacer is provided so that said support member supports said spacer,

C/ wherein said support member and said spacer are secured to each other, so that said spacer is straightened without warpage in a state of being secured to said support member, and a direction in parallel to a mounting surface of said substrate on which said supporting member is mounted, is in parallel to a longitudinal direction of said spacer, ~~and that a warpage of said spacer in a direction along which said first and second substrates are opposed to each other is straightened.~~

8. (Currently Amended) An electron beam apparatus according to claim 7, wherein said support member is shorter than said spacer in ~~the~~ a direction in which said first substrate faces said second substrate.

9. (Currently Amended) An electron beam apparatus comprising:
a first substrate that includes a plurality of electron-emitting devices,
wherein said plurality of electron-emitting devices are provided in a vacuum container;
a second substrate that is located opposite said first substrate and
that has a region irradiated by electrons emitted by said electron-emitting devices;
at least one spacer that is mounted as an atmospheric-pressure
resistant structure, that is sandwiched directly between said first and second substrates, or
indirectly via an intermediate member between said first and second substrates, and that is

extended longitudinally in a direction perpendicular to ~~the~~ a direction in which said first and second substrates are positioned opposite each other; and

a support member, for supporting said spacer outside an electron-emitting region that is defined between a region of said first substrate wherein said electron-emitting devices are located, and a region of said second substrate that is irradiated by said electrons,

wherein said spacer has a thermal expansion rate that is smaller than a thermal expansion rate of said substrate.

10. (Previously Presented) An electron beam apparatus according to claim 9, wherein a difference between the thermal expansion ratio of said substrate and the thermal expansion ratio of said spacer does not exceed 5%.

11. (Original) An electron beam apparatus according to claim 9, wherein said support member supports a plurality of said spacers.

12. (Previously Presented) An electron beam apparatus according to claim 11, wherein, while said support member is fixed to said spacer, said support member is fixed, to said substrate.

13. (Original) An electron beam apparatus according to claim 1, wherein said support members support one or both longitudinal ends of said spacer.

14. (Original) An electron beam apparatus according to claim 7, wherein said support members support one or both longitudinal ends of said spacer.

15. (Original) An electron beam apparatus according to claim 9, wherein said support members support one or both longitudinal ends of said spacer.

C/ 16. (Currently Amended) An electron beam apparatus according to claim 1, wherein, in said electron-emitting region, a film that is charged less easily than ~~the~~ a surface of a base member that serves as said spacer is deposited on ~~the~~ a surface of said spacer that is exposed in said vacuum container.

17. (Currently Amended) An electron beam apparatus according to claim 7, wherein, in said electron-emitting region, a film that is charged less easily than ~~the~~ a surface of a base member that serves as said spacer is deposited on ~~the~~ a surface of said spacer that is exposed in said vacuum container.

18. (Currently Amended) An electron beam apparatus according to claim 9, wherein, in said electron-emitting region, a film that is charged less easily than ~~the~~ a surface of a base member that serves as said spacer is deposited on ~~the~~ a surface of said spacer that is exposed in said vacuum container.

19. (Original) An electron beam apparatus according to claim 16, 17 or 18, wherein said second substrate includes an electrode for controlling electrons that are

emitted by said electron-emitting devices, and wherein said film is, at the least, electrically connected to either said first substrate or said electrode.

20. (Original) An electron beam apparatus according to claim 19, wherein said film includes a high resistance film having a sheet resistance of $10^7 \Omega/\square$ to $10^{14} \Omega/\square$.

21. (Original) An electron beam apparatus according to claim 20, wherein, at least in a region in which said film is electrically connected, said film includes a low resistance film having a sheet resistance equal to or smaller than $1/10$ of said high resistance film, and equal to or higher than $10^7 \Omega/\square$.

22. (Original) An electron beam apparatus according to claim 16, 17 or 18, wherein at least one part of said film has a secondary electron emission coefficient of two or smaller.

23 - 30. (Cancelled)

31. (Previously Presented) An electron beam apparatus according to claim 1, wherein said electron-emitting devices are connected by wiring laid on said first substrate, and a film formed on said spacer is electrically connected to said wiring.

32. (Previously Presented) An electron beam apparatus according to

claim 7, wherein said electron-emitting devices are connected by wiring laid on said first substrate, and a film formed on said spacer is electrically connected to said first substrate by said wiring.

33. (Previously Presented) An electron beam apparatus according to claim 9, wherein said electron-emitting devices are connected by wiring laid on said first substrate, and a film formed on said spacer is electrically connected to said first substrate by said wiring.

34 - 44. (Cancelled)

²⁴
~~45.~~ (Currently Amended) An electron beam apparatus according to claim 1, wherein an image-forming member, for forming an image by the irradiation of electrons that are emitted by said electron-emitting devices, is provided for said second substrate.

²⁵
~~46.~~ (Currently Amended) An electron beam apparatus according to claim 7, wherein an image-forming member, for forming an image by the irradiation of electrons that are emitted by said electron-emitting devices, is provided for said second substrate.

²⁶
~~47.~~ (Currently Amended) An electron beam apparatus according to claim 9, wherein an image-forming member, for forming an image by the irradiation of

electrons that are emitted by said electron-emitting devices, is provided for said second substrate.

48 - 50. (Cancelled)

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51.

(Previously Added) An electron beam apparatus according to claim 1, wherein said spacer is fixed at a position at an end side thereof rather than said portion.

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52.

(Previously Added) An electron beam apparatus according to claim 1, wherein said spacer has a section of which length in a direction along which said first and second substrates are opposed to each other is gradually made shorter in a vicinity of the end of the longitudinal direction.

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53.

(Currently Amended) A method of manufacturing a structure comprising a first substrate, a second substrate, and a spacer extending against an atmospheric pressure, sandwiched directly or indirectly between said first and second substrates, the method comprising the steps of:

straightening said spacer to remove warpage therefrom;

fixing said spacer to a supporting member supporting said spacer in a state such that a ~~mapage~~ warpage of said spacer is straightened;

disposing said spacer fixed to said supporting member onto said first substrate; and

disposing said first and second substrates in opposition to each

other.

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54. (Currently Amended) The method according to claim 53, wherein
said step of fixing said spacer to said supporting member is
conducted so that a direction in parallel to a mounting surface of said first substrate on
which said supporting member is mounted is in parallel with a longitudinal direction of
said spacer disposed on said first substrate, and a ~~mapage~~ warpage of said spacer in a
direction along which said first and second substrates are opposed to each other is
straightened.

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55. (Previously Added) A method of manufacturing a structure
comprising a first substrate, a second substrate and a spacer extending against an
atmospheric pressure directly or indirectly between said first and second substrates, the
method comprising the steps of:
fixing said spacer to a supporting member supporting said spacer in
a state such that said spacer is weighted;
disposing said spacer fixed to said supporting member onto said first
substrate; and
disposing said second substrate in opposition to said first substrate.

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56. (Currently Amended) The method according to claim 55, wherein
said step of fixing said spacer to said supporting member includes a
process of weighting to said spacer in the a direction along which said first and second

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substrates are opposed to each other.